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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,334	10/21/2003	Gary W. Kamerman	710601-1010	2178

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EXAMINER	
CHISDES, SARAH J	

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 06/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/690,334	KAMERMAN, GARY W.	
	Examiner	Art Unit	
	Sarah J. Chisdes	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☒ Claim(s) *27,28,36,38,39* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/21/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The Information Disclosure Statement submitted on October 21, 2003 has been received. An initialed, signed, and dated copy of it is included with this Office action.

Drawings

The drawings submitted on October 21, 2003 have been received and entered of record into the file. The drawings are acceptable.

Specification

The disclosure is objected to because of the following informalities: Lines 1-3 of paragraph 45 describe "the specimen 220 housed in the collection mechanism 102." It is not clear to the examiner how the specimen can be housed within the collection mechanism.

Paragraph 75 begins with "The lens 414 and are configured". It is not clear to the examiner if words are missing or if "and are" should be replaced by "is".

In line 3 of paragraph 88, the illumination device is labeled "1013". In the drawings, the illumination device is labeled 1012.

Appropriate correction is required.

Claim Objections

Claims 28, 36, 38, and 39 are objected to because of the following informalities: Claim 28 recites "the spatial filter". There is no antecedent basis for this element in the claim. If the claim is intended to be dependent on claim 22, rather than claim 21, there is a basis for this limitation. The examiners assumes that claim 28 was intended to depend on claim 22 and has examined it accordingly.

Claim 36 recites the limitation of "the representation of the first spectra". There is no antecedent basis for this limitation in the claim. The examiner assumes that it was intended to read "the representation of the known spectra", and has examined it accordingly.

Claims 38 and 39 both depend on claim 35, and both recite the limitation "the optical device". There is no antecedent basis for this element in these claims. If the claims were intended to be dependent on claim 37, rather than claim 35, there is a basis for this limitation. The examiner assumes that claims 38 and 39 were both intended to be dependent on claim 37, and has examined them accordingly.

Claim 27 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 27 restates verbatim the limitations of claim 26, other than stating that it is dependent on claim 26.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10, 17, 33, and 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These claims add to the spectral correlator (claims 10, 17,and 33) or method of spectral correlation (claim 41) the limitation that a variation with time of the similarity signal is a representation of the variation as a function of distance of a

concentration of the specimen indicated by the known spectrum. These claims do not set forth any elements that would allow the apparatus to perform this function or steps in a method that would result in this function. A desired result is claimed without a means to achieve that result.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 18-20, and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Hartman (US H780). Hartman discloses an apparatus with a chemical compound sample (element 12 in Fig. 1, described in column 2 line 32), thereby meeting the specimen limitation of claims 1, 18, and 34; a laser diode as the light source (column 2 line 37-38), thereby meeting the limitation of the illuminating device of claim 18; and an optical device to determine the similarity of the spectrum of the specimen to the spectrum of a known substance (column 2 lines 31-45), thereby meeting the remaining limitations of claims 1, 18, and 34. Hartman further discloses, in column 2 lines 43-45, a detector (element 22) and an indicator (element 24) to indicate the presence of the known substance in the specimen, thereby meeting the limitations of claims 2, 3, 19, and 20.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4-8, 11-15, 21-25, 28-31, 35-37, 39, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartman in view of Freyre (US 5,987,188).

In regard to claims 4-7 and 21-25 Hartman discloses an optical correlator with a Fourier Transform matched filter (column 1 lines 33-34), but does not specify the other components of the optical correlator claimed in the present application. Freyre, in column 1 lines 26-36, teaches that a classical Van der Lugt type of optical correlator comprises a lens to perform a Fourier transform on an incoming two-dimensional image (as specified in claims 4 and 21 of the present application), the result of which is passed to an optically matched filter (as specified by claims 6 and 23); the filter then effectively multiplies the transformed first image with a transform of a reference image (as specified by claims 5 and 22, where it is understood that by "transform" Freyre means "Fourier transform", and that the "optically matched filter" is a spatial filter), and passes the resultant beam to a second lens, which then performs an inverse transform on the beam, and focuses the light onto a detector (as specified by claims 7, and 24), such that the intensity of the beam at its focal point on the detector is indicative of the degree of correlation (as specified by claim 25). It would have been obvious to one of ordinary skill in the art at the time of invention to use any well-known type of optical correlator, including the Van der Lugt type, for the correlation of sample spectra in the device of Hartman to facilitate the analysis of a sample. Such use would not involve an inventive step.

Claims 11 and 28 are similar to claims 4 and 21, but specify that the spatial filter contains a representation of the second known spectrum. A Fourier transform or any transform of a spectrum is a representation of that spectrum, and therefore the limitations of claims 11 and 28

are met by Hartman in view of Freyre as set forth above. Claims 12-14 and 29-31, which depend from claims 11 and 28, respectively, contain the same elements as claims 5-7 and 12-14 are therefore also rejected on the basis set forth above.

Claims 35-37 and 42 specify the method for using the apparatus specified in claims 11-14 and 28-31, and are therefore not patentably distinct. Hence claims 35-37, and 42 are rejected as unpatentable over Hartman in view of Freyre as set forth above.

Claims 8, 15, and 39 depend on claims 7, 14, and 37, respectively, which have been rejected above as unpatentable over Hartman in view of Freyre. These claims add the limitation that the specimen is in direct proximity to the optical device. In Figure 1, Hartman discloses the specimen (12) in direct proximity to the spectrometer (10), which is the first part of the optical device, thereby meeting the limitations of claims 8, 15, and 39.

Claims 26, 27, 32, 33, 40, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schnell (US 4,620,284) in view of Hartman and Freyre.

In regard to claims 26, 27, 32, and 40, Schnell discloses an electronic spectral correlator using Raman spectroscopy for qualitative and quantitative analysis of a sample (column 3 lines 18-37). Schnell does not disclose an optical correlator using a Fourier transform lens, a spatial filter, and an inverse Fourier transform lens to perform the correlation. Hartman in view of Freyre, disclose an optical correlator comprising these elements, as set forth above in regard to claims 25, 31, and 35, on which claims 26, 32, and 40 depend. It would have been obvious to one of ordinary skill in the art at the time of invention to use an optical correlator in place of the electronic correlator used in Schnell, in order to increase the accuracy of the correlation by using

a correlator that is less dependent on precise calibration. (See column 1 lines 31-36 and 46-48 of Hartman.)

In regard to claims 33 and 41, these claims do not specify any new elements or structures that would result in this added feature, and therefore are met by Schnell in view of Hartman and Freyre, as set forth above.

Claims, 9, 10, 16, 17, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barringer (US 3, 518,002) in view of Hartman and Freyre.

In regard to claims 9, 16, and 38, Barringer discloses an optical spectrometer to analyze a remote specimen by optically correlating the spectrum from the specimen with spectra from known compounds using a spatial filter (column 1 lines 32-36). Barringer does not disclose the Fourier transform and inverse Fourier transform lenses or the specific series of analysis steps claimed in the present application. Hartman in view of Freyre discloses these specific elements of the optical correlator, as set forth above in regard to claims 7, 14, and 37. It would have been obvious to one of ordinary skill in the art at the time of invention to use the optical correlator disclosed by Hartman in view of Freyre in the spectrometer of Barringer in order to make the instrument more versatile by including an easily interchangeable matched filter for correlation with different known substances, and in order to make the instrument easier to use by making it less sensitive to precise calibration.

In regard to claims 10 and 17, these claims do not specify any new elements or structures that would result in this added feature, and therefore are met by Barringer in view of Hartman and Freyre.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarah J. Chisdes whose telephone number is 571-272-8540. The examiner can normally be reached on 9am -6:30pm Monday through Thursday, and 9am-5:30pm on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley Jr. can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

F.L. Evans
Primary Examiner
Art Unit 2877

SJC
May 27, 2005